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METHODOLOGY OF PLANNING FOR DEVELOPMENT IN THE UAR

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METHODOLOGY OF PLANNING FOR DEVELOPMENT IN THE U.A.R.

by

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I. Introduction.

1. During the 1950's fundamental changes took place in the political, social and economic structures of the U.A.R. These changes can be briefly described as favourable to the mobilization of the resources of the country, whether financial, material or human, towards fostering economic and social growth. For most of the decade a continuous process of structural planning went on, eliminating the undue inequalities featuring an ex-fudal economy, and establishing the necessary institutions which would undertake the functions of a developing society.

2. The process of functional planning had to follow in steps. First, certain major and urgent projects were launched, such as the High Dam project and the Tahrir Province project. Secondly, sectorial programs in agriculture, industry and services were constructed and executed. It was felt all the time that a better performance of the economy could only be obtained through a comprehensive plan. However, launching such a plan had to wait until 1960; thus leaving ample time for planners to collect the necessary information and to construct the national balances, such as social accounts commodity balances, input output tables and interflow tables which have to be available for any serious planning.

3. It is our purposes in this paper to point out the main features of this national plan and of the planning process and to illustrate in particular the uses made of advancements in science and technology in this respect. The plan aims at the doubling national income within ten years and starts with a five year plan aiming at fulfilling 40% of this increase. Annual plans are drafted within this general framework, the third of which has just started.

II. The Strategy of the Plan:

4. Although the main object is doubling national income in ten years, certain strategies had to be defined in order to enable planners to choose among the various alternatives capable of attaining this goal. These strategies can be summarized as follows:

(a) The exploitation of agricultural possibilities to the utmost. Horizontal expansion is limited by major

irrigation projects especially the High Dam and its anscillary projects. Although these projects are included in the first five-year plan, their real contribution would take place in the next five-year period. On the other hand, work is going on as quickly as possible to make use as much of vertical expansion as social and economic conditions permit.

(b) The creation of an industrial base which would shortly form the backbone of real development. This, together with agricultural development would form the material base of development.

(c) The creation of employment opportunities which would take care of urban unemployment, and the annual increase in the labour force. A full-employment target is something which would be achieved in the longer-run.

(d) A larger share in economic activity is to be allocated to the public sector, besides its tranditional channels. This is considered a must in order to overcome the difficulties encountered by the private sector in shouldering investments in hitherto neglected channels.

(e) A certain balance should be maintained between long-term fundamental projects and short-term quick-yielding projects.

(f) A fair increase in the output of services is permitted especially public services. This is in conformity with the preceding strategy.

(g) Use is made of all foreign sources of finance, since internal sources are deficient especially in the beginning of the plan. This is limited by the necessity of keeping a sound external position. The five year plan is deemed to end with a deficit in the blance of payment reversed.

(h) The continuation of already-committed-to projects and the exploitation of existing excess capacities.

(i) Allowing a moderate rise in per capita consumption while raising the marginal propensity to save (which is to remain below unity) in order to provide the necessary means of finance. In the meantime auti-inflationary measures would be used to evade any undue rises in prices or profits. The U.A.R. is one of a few countries where both the level and rate of increase of prices were successfully limited within narrow bounds.

(j) The introduction of necessary institutional and organizational reforms and physical controls to facilitate and ameliorate production activities, strengthen the administrative machinery, dynamize the backward communities, especially in rural areas, and bring about a more equalitarian distribution. It is recognized that an increase in income and a more just distribution should go hand in hand although the one rarely implies the other. These institutional reforms are the means to eliminate any inequalities emerging from the process of increasing output.

III. The first national Plan.

5. The first step towards drafting the national plan was the construction of highly aggregative models ranging from a simple Harrod-Damor model to a few-sectors model. These helped to explore the possibilities within the next twenty years. In the light of the discussion of these models a decision was taken to fix the target at doubling national income in ten years, which implied raising the average annual rate of increase from the recently experienced 4.5% to some 7% . This finally took the shape of an aggregative 10-years plan frame.

6. The details of the first five years were worked out in terms of specific investment projects and detailed national budget. This latter covers the elaboration of a projected system of social accounts, a series of commodity balances covering main commodities as well as groups of other commodities, and a system of financial flows. These details were first given to the base year and the fifth year, giving also the structure of the public budget in comparable form.

7. Similar details are given each year to the consecutive annual plans. This allows a certain latitude of flexibility in planning, enabling planners to take into consideration any difficulties or miscalculations. On the other hand, for purposes of implementation a continuous flow of information should be obtained by the authorities. For this purpose, a system of follow-up of the execution of the plan is established on a quarterly basis. Emphasis in the system is put on the investment process as well as on finance, prices and any production indicators as can formulated on a quarterly basis.

8. In conformity with the afore-mentioned strategy the following set of objectives is aimed at by the plan:

(a) Achieving a maximum rate of growth of income.

(b) Raising the levels of living of the masses both in the near and distant futures.

(c) Creation of balanced and accelerated growth, while trying all the time to introduce the right changes in the structure of the economy.

(d) Increasing employment opportunities.

(e) Economic and social equalizations.

(f) Amelioration of literacy and health conditions.

(g) Creation of the sense of national responsibility and cooperation.

IV. The process of planning.

9. As mentioned before the first step was the construction of aggregative models which helped to determine the required growth rate and to define the broad orders of

magnitudes. Once the main target has been fixed, all other steps have to follow so as to make things converge to it. This meant that a sectorial breakdown had to be drawn so as to achieve it together with other objectives. To do this sectorial models were worked out defining the main developments in each sector: its output, employment, inputs, investments, etc.; These models were constructed with the help of input-output techniques, demand studies and other relevant information such as, capital-output ratios, employment-output ratios and the like.

10. To achieve this, a host of techno-economic studies were undertaken by the Planning Committee, since such problems were hardly treated before. With the help of these models and of studies of the conditions of individual sectors a first draft plan frame was formulated. It brought out the main structure of output and investments required to achieve the target, and in the meantime secure balance between productions, between production, income and expenditure and between investments and financial resources. Thus sectorial targets could be derived in broad terms. These were referred to technicians in each sector in order to enable them formulating their specific projects, appraising them, and consolidating them in an intargrated sectorial plan which forms a part in a national construction. At this point,technicians in the various sectors started the real work of the formulation and appraisal of projects a problem hither to carried out only in terms of partial outlooks. These studies led to more specific sectorial plans, in which more refined figures of investment and output could be derived and directly related to specific projects.

11. The Planning Committee, equiped with these detailed studies on projects and technical priorities started the process of co-ordination, reformulation and approval of the final list of projects.This process went on, on a trial and error basis studying all the time the prospective national budget, detecting contradictions, excesses and bottle-necks, consulting technicians to readjust their project lists and contents, until the whole list bacone really balanced and consistent.

12. This phase ended with a plan frame covering the following main items:

(a) Detailed investment budget, covering the whole list of projects by production sector, and distributed between the private and the public sectors.

(b) Production targets by sector and the resulting value added, distributed between wage and non-wage incomes.

(c) Commodity balances covering sources and uses of principal commodities and groups of commodities.

(d) Projected social accounts for the main sectors and subsectors, with more details given for the accounts of the public sector both for administration and for public enterprises.

(e) Distribution of employment by sector and economic status. and the total wage bill.

(f) Distribution of investment projects by regions defining the share of each governate in the plan.

(g) Allocation of projects among ministries and institutions according to responsibilities of execution.

(h) A foreign exchange budget together with a system of financial flows, indicating ways and means of financing the plan both from internal and from external resources.

V. The main Features of the Planning Process:

13. The brief exposition given before of the national plan indicates the following features of the planning process:

(a) The fixed-target-setting approach is used and worked out in a successive-approximation manner.

(b) The plan is primarilly an investment plan, in the sence that what is identified by institution is the investment targets. However, production and income targets are derived by sector, but they are not immediately related to specific institutions. Ministries are therefore given the liberty to supervise orient and facilitate all firms and institutions producing in their own spheres, on the condition that they should take all necessary measures to achieve their sectorial targets.

(c) The public budget is directly related to the plan. This led to the necessity of reclassification of budget items in a manner suitable for incorporation in the plan frame.

(d) The planning process is a continuous and flexible one This is achieved through the following arrangements:

(I) Although a fixed target is worked upon, it is considered as a minimum which can be exceeded provided the necessary readjustments are taken care of.

(II) The documents published contain the plan frame only, i.e., the set of figures determining the path of the economy and its sectors. Problems of policy implementation are left to the respective authorities in the light of the development of the plan in execution..

(III) The annual plans are formulated and approved year by year, thus leaving a large scope for action within the general framework of the long term plan.

(IV) The quarterly system of follow-up gives a moving picture which forms the basis for readjustment of the annual plans and adopting policy measures according to needs. It is clear that a great deal of information and data processing is involved. This called for the construction of a well organized computation center in the Planning Committee as well as close collaboration between the committee and other agencies, particularly the Statistical agencies.

On the other hand, the adoption of the trial-and-error approach implied the preparation of certain key figures defining technical and economic relationships, as well as certain physical and other boundaries on the possibilities of expansion of the various sectors.

14. While this trial-and-error approach was going on, attempts were made to explore the possibilities of the application of the optimality approach. For this purpose an operation research unit we constructed and assisted in its work by Prof. Ragner Frisch from the Oslo Institute. These attempts culminated into what has become known as the Cairo Channel Model. The main data required were the following:

(a) An interflow table was constructed for the base period, covering 31 production sectors and certain breakdowns of the final demand sectors and the primary inputs.

(b) A complete set of structural relationships and coefficients were econometrically estimated. These defined input-output relationships, consumption functions and investment functions by sector or by channel of investment.

(c) Project description charts were worked out for each project, in a manner which can be directly translated to the basic set of equations. In the first instant it was considered convenient to apply the model to single projects. However, owing to certain shortcomings in the data and to the limited time available, actual studies were made on channels of investment rather than on individual projects.

(d) Certain boundaries on the productions, employment, and foreign exchange position, and estimates of existing capacities of each sector.

(e) A preference function defining the function which is to be maximized.

15. The model is used to define an investment plan which would maximize the national income and at the same time minimise the net debtor position of the country, given the previously mentioned boundaries. This is a linear programming problem which can be solved by well-known methods once the necessary computational facilities were available. In fact most of the preparatory work was completed by use of desk machines, ending with a formulation of the standard linear programming equations. The solution of these equations was computed by means of the Oslo electronic computer with the kind permission of Prof. Fristh.

16. Although the problem seems to be a straight-forward one, many possibilities were opened through the preparation of the model. The whole set of equations were put to a rather direct test by means of a simple model called the Skeleton Model. It was interesting to observe that the results of this model were quite close to those obtained by the trial-and-error approach mentioned before. On the other hand the model was capable of bringing out clearly certain implications of the suggested plan in a simple and clear manner.

17. Another problem was that of phasing. It is a well-known fact that the solution of the time phasing of projects within a medium- or long - term plan is a rather complicated problem requiring an elaborate technique. Perhaps one of the fundamental advantages of the Channel model is that it deals concretely with this problem.

18. Still another problem is that of the required changes of capacities of sectors in cases where the existing capacities are fully used and in those where excess capacities exist. These and other problems were attached during the formulation of the model and its variations. The result was a better understanding of the implications of the process of development and a clear-cut determination of the set of data required for planning. Although the results of the application of this method were not directly used in drafting the plan, they were quite valuable in giving additional information helping to refine the planning process.

VI. Special Features:

19. In a national plan many aspects are necessarily involved. Some of these are of a regional character, and they are intimately related to the problem of location of projects. Regional planning is one of the most difficult and controversial subject and it becomes important in countries which are characterized by marked regional differences whether economically or socially. This is not quite the case with the U.A.R. which is contained in a single vally.However the regional aspects appear in the problem of the determination of location of projects.

20. For projects of a national character the problem of location can be solved from the center. The criteria used are largely of an economic nature related to raw materials, labour availability, marketing facilities,etc. These problems are well-known, but the method of solution can differ. In certain important cases operation research techniques were used to determine the distribution of activities over different locations. To mention one case, the problem of oil refining was studied by the operation research group in the Institute of National Planning. It is expected that the method will soon have wider applications.

21. For most of the services projects the regional factor has a strong weight. In fact the projects in the fields of education, health, etc., were first suggested by the regional offices. These proposals were prepared on the basis of the needs and availabilities of each region. The final list of projects was decided upon in a manner satisfying these needs and realizing consistant and co-ordinated programs for the whole country.

22. Thus allocation of investment projects was possible on a regional basis. This is used as a basis for execution and follow-up activities. A new local administration system was recently introduced, and is made responsible for the development of the resources and conditions of the various regions. On the other hand the central administration is itself under-

going fundamental changes to enable it to shoulder the new tasks implied by the national plan. It is expected that with the introduction of these administrative-changes, new techniques and approaches to the national plans would be introduced.

23. The problem of allocation has another aspect, viz., that of allocation of resources and investments between sectors, and between projects within each sector. The allocation between sectors has been already mentioned before, and was shown to be influenced primarily by the desire to introduce fundamental changes in the structure of production, with aspects of employment and demand acting largely as boundaries. Raising productivity receives much more weight than increasing employment and demand acting largely as boundaries. Raising productivity receives much more weight than increasing employment at a low level of productivity, on the condition that a certain minimum of employment opportunities is realized.

24. This problem is directly connected with that of the choice of technology. In formulating and appraising various projects, there is usually a number of alternatives open for choice. The most important difference between these alternatives is in their capital intensities, and it is generally argued that owing to capital scarcity in developing countries, capital-saving techniques are preferable. This issue is usually mixed with another one, namely the choice of directions of investment and it is believed that a better choice is made when capital-saving channels are chosen. While it is true that choice of technique should be made in a manner exploiting the abundant resources, it is also true that the above two issues need not lead to the same program of activities.

25. For this purpose, project appraisal is carried out in an overall sense, taking into consideration not only the direct effects, but also the indirect ones. This is a point of great importance with respect to systems of priorities especially at different time horizons. On the other hand the final choice is affected by the strategy and objectives of development planning. In fact, the channel model mentioned before was originally formulated in terms of projects rather than groups of projects. However the necessary data and efforts were overtaxing at that early stage of planning, and it is hoped that shortly this problem would be solved and that application of dynamic and quadratic programming techniques would be availed to planners in actual applications.

26. For the time being planners have to use a number of objective criteria in a rather subjective manner. Thus at an early stage, such ratios and paramenters as capital-output ratios, employment impacts; net creditor position, productivity considerations, etc..., are considered together with technological aspects in order to reach some decision on the individual projects. Another test is passed at a later stage when sectorial programs are formulated when the time sequence of projects is considered and a system of points is considered. Finally these programs are subjected to another series of tests when the problem of co-ordination and formulation of the national plan in the trial-and-error approach mentioned before.

VII. Data and research:

27. The problem of data and information required for development planning raises the interesting question: should all data be constructed before starting the planning process, or could we go on planning some time before this is realized? Our own experience is that a medium path is advisable if not unavoidable. It is clear that a certain minimum of information is a must before any serious planning activity can be started at all. A part of this minimum is usually covered by ordinary statistical services of the country. These are the data relating to the analysis of present and past trends of production, expenditure and incomes, and their components. They comprise also those date required for the analysis of population trends and of economic, social and demographic structures.

28. The adoption of the comprehensive planning techniques further requires the construction of coordinated statistical frames usually known under the heading of social accounts, input - output and interflow tables. More detailed studies of consumption demand are also required. The raw material for such constructions can be easily obtained through regular channels, but a lot of processing is required and a great deal of inconsistencies have to be eliminated. About five years had to pass in constructing such data and experimenting with the various planning techniques before the general plan could be in shape.

29. On the other hand, a new set of data relating to new-projects has to be compiled. Here is an area which is to be covered only if actual planning is on its way. Unless projects data are compiled to be directly analysed and used, they will never take the necessary shape. On the other hand, it is not expected that they will directly fit an elaborate technique of planning unless they are discussed within the framework of some general plan so that project-makers, who are generally technicians concerned with partial sectors, can appreciate the real need and uses of these types of data. In a sense, the planning process has to develop into more complicated forms by stages defined by the capacities of project-makers to compile, analyse and appreciate the more elaborate information required.

30. Another field which is opened only after the decision is taken to put the plan into effect is that of follow-up. The data required here takes another form, and is to a large extent new to all agencies involved in development activities. The adaptation of a quarterly follow-up system to measure current conditions, and evaluate the execution of various projects and their economic and social results in a quick and precise manner has caused a lot of worries to many institutions. The main problem is that data of both a specific nature (relating to specific projects and items of production and expenditure) and of a general nature (relating to national aggregates) have to be prepared by individual institutions themselves, and not simply by central or specialized statistical machineries.

31. It is quite clear that these data are not simply of a descriptive character, but they should be coined in such a manner as to fit the elaborate system of processing required for planning. This means that extensive and intensive research activities should be involved. In turn this means the need for the preparation of well-trained research workers, the availability of research equipment and facilities, and the use of the most up-to-date techniques. In the area of statistical data, sampling techniques were of great value in preparation of data required for analysis of consumers' demand, studies of manpower and wage changes and in carrying out a great number of social surveys. For purposes of processing these data statistical and econometric theories had to be rapidly developed and applied in order to obtain meaningful results. In particular, problems of model building, analysis of time series and cross-sectional data and their combination required a good deal of efforts.

32. On the other hand, technoeconomic studies had to be superimposed on whatever already existed in purely technical forms. As was mentioned before, modern operation research techniques as well as quality control techniques are receiving wider appreciation and are rapidly growing into use whether in specific production activities or for purposes of general planning. Another field of research is that of productivity measurement and improvement. The importance of this field derives from the fact that any real development is in essnece equivalent of raising productivity in all directions and at all levels.

33. Directly related to this problem of productivity is that of management, administration and the preparation of the technical personnel engaged in planning at various levels. For this purpose three main institutes were constructed: one for public administration, another for national planning and a third for higher management. Thes institutes are primarily concerned with training of officials and other persons working in the various fields and with problems of research required for development. These institutions together with already existing ones, such as the Institution of Scientific Research and other social centres, the Central Statistical Committee and the National Planning Committee are capable of organizing research teams in the various fields, thus providing the development activity with its fundamental bases.